CLAIMS

1. A method for dispensing droplets of a liquid to a microsystem in the form of a disc comprising a target area (TA^0I) in its surface, said disc preferably being a microfluidic disc comprising a microchannel structure I with an inlet port that is equal to said target area, **characterized** by comprising the steps of:
   i) providing (1) said disc which has a triggering mark, preferably in the circumference, and (2) a dispenser arrangement comprising:
      a) a spinner for rotating the disc around its axis,
      b) a drop dispenser permitting dispensation of droplets to inlet port I,
      c) a fixed trigger position outside the disc, and
      d) a controller which is capable of triggering the dispensation of a droplet into (TA^0I) as a function of the triggering mark passing the trigger position;
   ii) placing the disc in the spinner and programming the controller with values for dispensing parameters that will give dispensation of the droplets to TA^0I;
   iii) dispensing the droplets.

2. The method of claim 1, **characterized** in that said parameters are selected amongst
   (a) speed of rotation of the disc (angular velocity ω),
   (b) the revolutions under which dispensation is to take place and/or the frequency f' of droplet dispensation to target area TA I,
   (c) shape of the dispensing signal, for instance amplitude, and/or frequency f of dispensing pulses etc,
   (d) delay T_{elec} between the signal from the trigger position and the actual dispensing of a droplet,
   (e) distance h between the dispenser orifice and the disc, and
   (f) radial movement and/or radial position of the dispenser orifice.

3. The method of claim 1 or 2, **characterized** in that the liquid comprises a gradient with respect to at least one of its constituents, said gradient being a continuous or a stepwise gradient, for instance containing one, two or more steps.

4. The method of claim 3, **characterized** in that the value for at least one of the parameters (a), (c), (d), and (e) is adjusted during the dispensation to compensate for the change in velocity of the droplets which possibly is caused by the gradient, said adjustment preferably being handled by the controller.

5. The method of claim 1, **characterized** in that the disc is a microfluidic disc and that said microchannel structure I comprises a microcavity positioned downstream to TA^0I and used for carrying out a chemical or biological experiment.

6. The method of claim 1, **characterized** in that said liquid comprises a gradient which is defined as a change in salt concentration, kind of salt, pH, composition of solvents and/or some other component/components that interferes/interfere with an experiment which is carried out in the microcavity.

7. The method of claim 5 or 6, **characterized** in that the microcavity contains a separation media in form of a porous bed, for instance a porous monolith or a packed bed of porous or non-porous particles that may be in beaded form and/or are monosized (monodispersed) or polysized (polydispersed).

8. The method of claim 7, **characterized** in that the method comprises
   a) dispensing a liquid sample (liquid 1) to a sample inlet port of microchannel structure I, which sample contains at least one substance that is capable of binding to the bed when passing through it, and
   b) subsequently dispensing an eluent (liquid 2) to an inlet port for releasing at least a portion of said substance from the separation medium,

   at least one of said inlet ports being TA^0I and liquid 1 and/or liquid 2 being dispensed to TA^0I as droplets through said drop dispenser by using said programmed values for the dispensing parameters.

9. The method of claim 8, **characterized** in that the eluent comprises a gradient with respect to one of its constituents and is said at least one liquid.

10. The method of claim 1, **characterized** in that

a) the spinner is linked to an encoder which gives at least 10,000 grades per revolution, and

b) the time at which the dispensing signal is given is determined by the number of encoder grades between the triggering mark and the triggering position.

11. The method of claim 1, **characterized** in that the time at which the dispensing signal is given is calculated from the speed of rotation (angular velocity) and the time at which the triggering mark passes the trigger position.

12. The method of claim 1, **characterized** in that a piezo-driven actuator drives the dispenser which is actuated according to the dispensing signal.

13. The method of claim 1, **characterized** in that the dispenser is a flow-through dispenser.

14. The method of claim 1, **characterized** in that the disc comprises one, two or more additional target areas (TA^1I, TA^2I, TA^3I etc) which are at the same radial distance from the disc centre as inlet port I (TA^0I).

15. The method of claim 14, **characterized** in that the disc is a microfluid disc comprising two or more microchannel structures and having target areas (TA^0I, TA^2I, TA^3I etc) in form of inlet ports of said microchannel structures.

16. The method of claim 14 or 15, **characterized** in that the angular distances between the target areas (TA^0I, TA^1I, TA^2I, TA^3I etc) that are located next to each other are the same or different.

17. The method of claim 16, **characterized** in that the shape of the dispensing signal is programmed to comprise a number of pulses such that each droplet formed will correspond to a pulse and that the programmed values for the remaining parameters (a)-(f) will be such that for each dispensing signal at most one droplet per revolution will be dispensed into a target area.

18. The method of claim 1, **characterized** in that the dispenser arrangement comprises an array of dispensers that are under control of the controller.

19. An arrangement for dispensing liquids droplets of a liquid to a microsystem in the form of a disc comprising a target area (TA^0I) in its surface for the droplets, said disc preferably being a microfluidic disc comprising a microchannel structure with an inlet port that corresponds to TA^0I, **characterized** in that the arrangement comprises:

a) a spinner for rotating the disc around its axis,

b) a drop dispenser permitting dispensation of droplets to TA^0I,

c) a fixed trigger position positioned outside the disc and comprising a detector which is capable of detecting a triggering mark passing the trigger position when the disc is placed in spinner and rotated, and

d) a controller which is capable of triggering the dispensation of a droplet into TA^0I as a function of the triggering mark passing the trigger position.

20. The arrangement of claim 19 that comprises any of the features of the arrangement defined in claim 2.